

CLAIMS

1. A radiology device comprising an X-ray source (11)
for exposing a subject (S) to the radiation of said
5 source, means (12) for converting the X-rays into
optical images so as to form primary optical images,
means (20) for transforming the primary optical images
into secondary optical images, and means (40) for
displaying the secondary images to a user,
10 characterized in that the means for forming the
secondary optical images comprise an optical chain
comprising in succession, from the output of the
converter to the output of the device, an image
enlargement assembly (22) exposed directly to the
15 primary images from said conversion means (12), an
assembly (23) for optical intensification of the
enlarged images and a photosensitive matrix sensor (25)
for making said secondary images, and in that the
enlargement assembly (22) is made up solely of optical
20 elements performing no discretization of the images.

2. The radiology device as claimed in claim 1,
characterized in that the enlargement assembly (22) is
a variable enlargement assembly (22), able to enlarge
25 the images according to a desired enlargement
coefficient within a given range.

3. The radiology device as claimed in one of the
preceding claims, characterized in that it comprises
30 means for moving the elements of the optical chain in a
plane generally parallel to the midplane of the
conversion means.

4. The radiology device as claimed in the preceding
35 claim, characterized in that it comprises a central
control unit (30) for controlling the movement of the
elements of the optical chain.

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5. The radiology device as claimed in the preceding claim, characterized in that the central control unit is physically distanced from the other elements of the device.

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6. The radiology device as claimed in one of the preceding claims, characterized in that it comprises means of monitoring the exposure and the degree of enlargement of the images.

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7. The radiology device as claimed in one of the preceding claims, characterized in that the assembly (23) for optical intensification of the images comprises components of the MCP type.

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8. The radiology device as claimed in one of the preceding claims, characterized in that it comprises means (31) for digitizing the secondary images arising from the photosensitive matrix sensor.

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9. The radiology device as claimed in the preceding claim, characterized in that it comprises interfaces for distributing the images destined for digital peripherals.

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10. The radiology device as claimed in one of the preceding claims, characterized in that it comprises a screen for visualizing the digitized secondary images.

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11. The radiology device as claimed in one of the preceding claims, characterized in that the means (12) for converting the X-rays into optical images consist of a fluoroscopy screen of the phosphor coating screen type.

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12. The radiology device as claimed in one of the preceding claims, characterized in that said optical

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chain is directed along a different axis from the normal to the midplane of the means (12) for converting the X-rays into optical images, the device comprises a mirror for deflecting the primary images to the optical chain and the device comprises a shield (27) for protecting the elements of the optical chain from the X-rays.

13. The radiology device as claimed in one of the preceding claims, characterized in that the optical chain comprises a refocusing lens (24).

14. The radiology device as claimed in one of the preceding claims, characterized in that it comprises a mirror (28) for separating the images arising from the intensification assembly (23) and a digital video camera (29).

15. The radiology device as claimed in one of the preceding claims, characterized in that the optical coupling between the intensification assembly (23) and the sensor (25) is effected by optical fibers (24').

16. The use of a radiology device as claimed in one of the preceding claims for real-time medical examination.

17. The use of a radiology device as claimed in one of claims 1 to 15 for nondestructive qualitative inspection of the materials, in particular in the industrial or maritime sector.